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SURFACE NAVY CONTRIBUTIONS TO FORCENET

INTRODUCTION

- **LAST OCTOBER, I WAS THE GUEST SPEAKER AT THE ROLL OUT CEREMONY FOR THE NEW E2C AIRCRAFT, HAWKEYE 2000**

- **THIS WAS A VERY SIGNIFICANT EVENT IN THE NAVY'S TRANSFORMATION EFFORT. FOR ONE THING IT WAS TRANSFORMATIONAL BECAUSE I, THE, DIRECTOR OF SURFACE WARFARE, THE EPITOME OF AN AVIATOR'S DEFINITION OF A "BLACK SHOE" WAS THE FEATURED SPEAKER FOR THE ROLL OUT OF A NEW AIRPLANE.**

- **BUT MY INVITATION TO SPEAK WAS ONLY AN EXAMPLE OF THE CULTURAL CHANGES THAT NETWORK CENTRIC OPERATIONS ARE BRINGING TO THE NAVY TODAY. THE TRULY TRANSFORMATIONAL ASPECT OF THE HAWKEYE 2000 ROLL OUT WAS THE INTRODUCTION OF A KEY ELEMENT OF THE COOPERATIVE ENGAGEMENT CAPABILITY TO THE FLEET.**

- **THE NAVY IS TRANSFORMING TO A JOINT, NETTED, DISTRIBUTED AND FORWARD STATIONED FORCE**

- **A BALANCED TOTAL FORCE OF SHIPS THAT WILL BRING AN EXPANDED “TOOLBOX” OF CAPABILITIES TO THE JOINT WARFARE COMMANDER AS WE PARTICIPATE MORE AND MORE IN INTEGRATED JOINT OPERATIONS.**

- **NETWORK CENTRIC OPERATIONS WILL BE THE FOUNDATION OF OUR TRANSFORMATION TO THE FORCE OF THE FUTURE AND THE KEY ENABLER IN NETWORK**

CENTRIC OPERATIONS WILL BE THE FORCENET CONCEPT

- **FORCENET IS NOT A SYSTEM, RATHER IT IS THE ARCHITECTURE BY WHICH WE WILL INTEGRATE OUR SENSORS, NETWORKS, DECISIONS AIDS, WEAPONS AND WARFIGHTERS INTO AN ADAPTIVE HUMAN CENTERED MARITIME SYSTEM**

- **FORCENET WILL ALLOW THE NAVY, AS A PART OF AN INTEGRAL JOINT FORCE, TO LEVERAGE LEGACY AND DEVELOPING CAPABILITIES TO ACHIEVE DOMINANCE ACROSS THE FULL SPECTRUM OF WARFARE MISSIONS**

- **HAVING ALREADY MADE A SIGNIFICANT CONTRIBUTION TO THE DEVELOPMENT OF NETWORK CENTRIC WARFARE WITH SYSTEMS SUCH AS: NTDS, AEGIS, AND TACTICAL DATA LINKS, THE SURFACE NAVY IS LEADING THE WAY IN SUPPORTING THE FORCENET CONCEPT BY INTEGRATING COMMUNICATIONS, SENSORS AND WEAPONS THROUGH INNOVATIVE SYSTEMS LIKE THE COOPERATIVE ENGAGEMENT CAPABILITY (CEC),**

THE NAVAL FIRES NETWORK (NFN) AND THE AREA AIR DEFENSE COMMANDER (AADC) SYSTEM.

- **THESE PROGRAMS ARE BEING ADVANCED IN PHASES TO GET CAPABILITY INTO THE FLEET AS SOON AS POSSIBLE BUT THEY ARE ALSO BEING ADVANCED WITH AN EYE TOWARD INTEROPERABILITY:**
  - **AT THE JOINT LEVEL – INTEGRATED OPS**
  - **AT THE NAVAL BATTLE FORCE LEVEL**

COOPERATIVE ENGAGEMENT CAPABILITY

- **BY TAKING OUR EXISTING SENSORS ON SHIPS AND IN AIRCRAFT SUCH AS THE E2C, AND NETTING THEM TOGETHER OPTIMIZING EACH SENSOR'S CAPABILITIES, WE DRAMATICALLY CHANGE THE WAY THE WARFIGHTER VIEWS THE BATTLE SPACE.**

- **THE EXCHANGE OF FIRE CONTROL QUALITY INFORMATION PROVIDES TIME TO DECIDE AND ALLOWS OUR WEAPONS TO SHOOT TO AT THE MAXIMUM FLIGHT**

CAPABILITY OF THE MISSILE RATHER THAN THE LIMIT OF THE SENSORS.

- **THE JFK BATTLE GROUP DEPLOYED LAST MONTH WITH CEC, A TANGIBLE EXAMPLE THAT NETWORK CENTRIC WARFARE IS HAPPENING NOW. CONCURRENTLY, WE ARE MOVING AHEAD WITH NEW DEVELOPMENTS SUCH AS:**
  - **INCREASING THE NUMBER OF COOPERATING NODES IN THE CEC SENSOR NETWORK (POTENTIALLY INCLUDING JOINT ASSETS)**
  - **EXAMINING CEC'S POTENTIAL AS THE FOUNDATION OF THE JOINT COMPOSITE TRACKING NETWORK THAT WILL FACILITATE THE DEVELOPMENT OF A SINGLE INTEGRATED AIR PICTURE (SIAP)**
  - **ENSURING COMPLIANCE WITH THE GLOBAL INFORMATION GRID (GIG) ARCHITECTURE**
  - **AND EXAMINING BANDWIDTH-REDUCING TECHNOLOGIES.**

- **IN SHORT THE NAVY STANDS READY TO FIELD A SYSTEM THAT IS AND WILL REMAIN:**
  - **OPERATIONALLY EFFECTIVE**
  - **OPERATIONALLY SUITABLE**
  - **GIG–COMPLIANT**
  - **JROC-VALIDATED**

AREA AIR DEFENSE COMMANDER

- **LEVERAGING NETWORKS LIKE CEC, NEW AND INNOVATIVE COMMAND AND CONTROL SYSTEMS WILL SIGNIFICANTLY ENHANCE WARFIGHTING EFFECTIVENESS BY REDUCING CONFUSION AND COORDINATING THE EFFORTS OF ALL THE UNITS IN A FORCE.**

- **EXAMPLES OF SUCH COMMAND AND CONTROL SYSTEMS ARE THE AREA AIR DEFENSE COMMANDER SYSTEM AND THE NAVAL FIRES NETWORK PROGRAM WHICH HAVE BOTH BEEN ACCELERATED OVER THE LAST YEAR.**

- **THE AREA AIR DEFENSE COMMANDER (AADC) PROGRAM WILL PROVIDE NAVAL FORCES SIGNIFICANT NEW JIAD CAPABILITY AND BUY BACK MORE BATTLE SPACE AND DECISION TIME.**

- **THE OBJECTIVE OF AADC IS TO PROVIDE AN ESSENTIAL JOINT AIR DEFENSE PLANNING AND EXECUTION TOOL.**

- **AADC PROVIDES A MEANS TO CONDUCT DETAILED AND COMPREHENSIVE AIR DEFENSE PLANNING, INCLUDING AIR SPACE DECONFLICTION AND THE OPTIMAL STATIONING OF AIR DEFENSE ASSETS.**

- **THE SYSTEM IS BEING DEVELOPED TO BE FULLY INTEROPERABLE WITH THE ARMY AND AIR FORCE AIR DEFENSE PLANNING SYSTEMS.**

- **THROUGH HIGH-RESOLUTION DISPLAYS AND ROBUST COMPUTING POWER, THE AADC MODULE ALSO PROVIDES THE CAPABILITY TO SERVE THE AIR DEFENSE COMMANDER THROUGH THE ENTIRE RANGE OF CONFLICT FROM MINOR CRISIS TO MAJOR THEATER WAR.**

- **IN THE WAKE OF THE SEPTEMBER 11 ATTACK, WE IDENTIFIED AADC AS ONE OF THE SYSTEMS THAT WOULD BETTER ENABLE OUR FORCES TO CONDUCT FORWARD DEPLOYED OPERATIONS AND HOMELAND DEFENSE AND RE-BASELINED THE PROGRAM TO DEVELOP AND DELIVER A SYSTEM TO THE FLEET TODAY VICE THE SCHEDULED FY05 INTRODUCTION DATE.**

- **THROUGH THIS REALIGNED PROGRAM, WE INSTALLED ONE UNIT THIS YEAR ON USS BLUE RIDGE AND INTEND TO CONTINUE INSTALLS INTO NEXT YEAR AND ACROSS THE FYDP, SIGNIFICANTLY ACCELERATING THE DELIVERY OF THIS REVOLUTIONARY WARFIGHTING**

CAPABILITY TO THE FLEET AND, POTENTIALLY, JOINT FORCES.

- **THIS RAPID FIELDING STRATEGY INCREASED PLANNED UNIT PROCUREMENTS BY AN ADDITIONAL SIX UNITS TO A TOTAL OF SEVENTEEN UNITS ACROSS THE FYDP. IN FACT, I SUGGEST AADC HAS BECOME A MODEL FOR TRANSITION OF RAPID PROTOTYPING TO PRODUCTION, AN APPROACH WHICH MUST BECOME A WAY OF LIFE FOR ACQUISITION IN A HIGH TECH 21ST CENTURY.**

NAVAL FIRES NETWORK

- **WITHIN THE SPECTER OF COMMAND AND CONTROL ENHANCEMENTS, THE NAVAL FIRES NETWORK (NFN) WAS DEVELOPED TO PROVIDE THE NETWORK-CENTRIC INFRASTRUCTURE AND PROCESSING CAPABILITY (SOFTWARE AND HARDWARE) REQUIRED TO SUPPORT STRIKE, TIME CRITICAL TARGETING MISSIONS AND OTHER MISSIONS BENEFITING FROM IMPROVED SITUATIONAL AWARENESS.**

- **STRIKE, SURFACE STRIKE, LAND ATTACK, EXPEDITIONARY WARFARE FIRE SUPPORT AND ANTI-SUBMARINE MISSIONS ALL BENEFIT FROM NFN.**

- **NFN WILL BE INTEGRATED INTO ALL THE PHASES OF THE TIME-CRITICAL TARGETING PROCESS, CONNECTING THE SENSOR GRID, INFORMATION GRID AND THE WEAPONS GRID.**

- **IT DIGITALLY CONNECTS SENSORS, THROUGH DECISION MAKERS, TO SHOOTERS AND WILL COLLECT, PROCESS, FUSE AND DISSEMINATE DATA FROM JOINT SENSORS TO ID, TARGET AND DESTROY ENEMY FORCES.**

- **LIKE AADC, WE HAVE ACCELERATED DEPLOYMENT OF THIS SYSTEM AND ARE FIELDING IT IN PHASES TO GET THESE REVOLUTIONARY CAPABILITIES INTO THE FLEET NOW.**

INTEROPERABILITY

- **AS WE SEEK TO INTEGRATE MORE SYSTEMS TOGETHER AND UPDATE THEM "ON THE FLY" WE MUST CONSIDER INTEROPERABILITY AS A MAJOR CONCERN IN DEVELOPMENT AND FIELDING OF OUR NEW SYSTEMS.**

- **WE MUST FACE THE FACT THAT, OUR LEGACY SYSTEMS HAVE HAD SOME PROBLEMS WHEN WE TRY TO BRING THEM ALL TOGETHER AS AN INTEROPERABLE FORCE WITHIN BATTLE GROUPS AND WITHIN JOINT FORCES.**

- **WITH RESPECT TO JOINT INTEROPERABILITY THE NAVY IS TAKING THE LEAD. BOTH NFN AND CEC WILL BE FULLY JOINT INTEROPERABLE IN THE SECOND PHASE OF THEIR DEPLOYMENTS AND LAST YEAR THE JOINT REQUIREMENTS OVERSIGHT COUNCIL (JROC) ESTABLISHED THE OFFICE OF THE SIAP SYSTEM ENGINEER, MODELED AFTER THE NAVY'S SIAP ENGINEER EFFORT, TO BEGIN WORKING INTEROPERABILITY ISSUES ACROSS THE SERVICES.**

- **THE OFFICE HAS BEEN ESTABLISHED AS A NAVY LED, JOINT PROGRAM OFFICE, WHOSE INITIAL FOCUS WILL BE RESOLVING INTEROPERABILITY ISSUES CURRENTLY EXISTING IN THE TACTICAL DATA LINKS USED BY ALL THE SERVICES.**

- **THE OBJECTIVE OF THE NAVY'S FORCE INTEROPERABILITY PROGRAM IS TO ENGINEER INTEROPERABILITY INTO OUR SYSTEMS.**

- **THE NAVY'S FORCE INTEROPERABILITY PROGRAM IS DIVIDED INTO THREE FUNCTIONAL AREAS: ASSESSMENTS, READINESS AND WARFARE SYSTEMS ENGINEERING.**

- **THE FOUNDATION OF THIS EFFORT HAS BEEN THE ESTABLISHMENT OF A SERIES OF A LAND BASED TEST SITES THAT SUPPORT TESTING OF ESSENTIAL FLEET COMBAT SYSTEM UPGRADES BEFORE THEY ARE INTRODUCED IN THE FLEET.**

- **BY NETWORKING THESE SITES TOGETHER INTO A DISTRIBUTED ENGINEERING PLANT (DEP), WE CAN CONDUCT RIGOROUS FORCE WIDE INTEROPERABILITY TESTING BETWEEN DIFFERENT COMBAT SYSTEMS, INCLUDING THE EXAMINATION OF SPECIFIC BATTLE FORCE CONFIGURATIONS BEFORE THE SOFTWARE IS DEPLOYED AT SEA.**

- **THE DISTRIBUTED ENGINEERING PLANT (DEP) CONTINUES TO EVOLVE, LEVERAGING EXISTING ENGINEERING INFRASTRUCTURE TO TRANSFORM THE NAVY.**

- **AS WE DRAW LESSONS FROM THE INTEROPERABILITY TESTING OF TODAY’S COMBAT SYSTEMS, WE ARE SIMULTANEOUSLY FEEDING THE RESULTS INTO THE DEVELOPMENT OF TOMORROW’S COMBAT SYSTEM BASELINES.**

- **AS WE EXPLORE THE TRANSFORMATION OF THE EXISTING AEGIS BASELINES INTO AN OPEN ARCHITECTURE, DISTRIBUTED PROCESSING COMBAT SYSTEM, WE INTEND TO BUILD THESE INTEROPERABILITY ENHANCEMENTS INTO OUR NEW SYSTEMS FROM THE GROUND UP.**

- **FOLLOWING THE SUCCESSFUL TRANSITION TO A COMPLETE COTS COMPUTING ENVIRONMENT ON OUR NEW CONSTRUCTION AEGIS DDGS, AEGIS BASELINE DEVELOPMENT WILL INTRODUCE AN OPEN ARCHITECTURE, HIGH PERFORMANCE, INTEROPERABLE AND NETWORK READY SOFTWARE ARCHITECTURE, WHICH WILL ELIMINATE MANY OF THE INTEROPERABILITY LIMITATIONS OF TODAY'S COMBAT SYSTEMS.**

- **AS THE DEP HAS CONTINUED TO MATURE AND EXPAND, IT HAS BECOME EVIDENT THAT THE ROLE OF THIS POWERFUL ENGINEERING TOOL MUST BE EXPANDED TO SUPPORT THE NAVY ACQUISITION PROCESS, IN ADDITION TO THE DEPLOYING FORCES.**

- **FROM ITS INCEPTION IN 1998 THROUGH 2000, THE FULL EFFORTS OF THE DEP REMAINED FOCUSED ON BATTLE GROUP INTEROPERABILITY TESTING.**

- **HOWEVER, BEGINNING IN 2001, THE DEP TEAM ESTABLISHED NEW INITIATIVES - IN ADDITION TO FULL BATTLE GROUP TESTING OPERATIONS - TO HELP PROGRAM MANAGERS FIND AND RESOLVE PROBLEMS EARLIER IN THE ACQUISITION CYCLE.**

- **IN FACT DURING 2001, FOR THE FIRST TIME, 45 PERCENT OF DEP UTILIZATION WAS DEDICATED TO SUPPORTING DEVELOPMENT WORK.**

- **FOR EXAMPLE, THE COOPERATIVE ENGAGEMENT CAPABILITY PROGRAM, WHICH HAS RAPIDLY BECOME THE DEP'S SECOND LARGEST USER, HAS BEEN ABLE TO TEST 46 PERCENT OF THEIR INTEROPERABILITY REQUIREMENTS IN THE DEP, SUBSTANTIALLY**

REDUCING THEIR REQUIREMENTS TO DO LIVE SHIPBOARD TESTING, AND THEREFORE SHIFTING THIS BURDEN FROM THE FLEET TO THE SHORE INFRASTRUCTURE.

- **THE DISTRIBUTED ENGINEERING PLANT CONTINUES TO MATURE AND EXPAND AND NOT ONLY IDENTIFIES INTEROPERABILITY DEFICIENCIES BUT ALSO IMPLEMENTS FOLLOW UP TESTING OF PRIORITIZED FIXES WHICH YIELD THE GREATEST RETURN ON OUR WARFIGHTING INVESTMENT**

- **THE EXAMPLE OF CEC SHOWS US THE POWER OF INTEGRATING SYSTEMS IN A NET CENTRIC MANNER**

- **WHEN WE ALIGN OUR SYSTEMS AND INTEGRATE THEM USING A SYSTEMS ENGINEERING APPROACH INTO A NEW ARCHITECTURE WHICH ALLOWS FOR THE EFFICIENT EXCHANGE OF REQUIRED DATA ACROSS THE NETWORK, WE WILL REALIZE ANOTHER DRAMATIC INCREASE IN SITUATIONAL AWARENESS, SPEED OF COMMAND AND SYNCHRONIZATION THAT WILL BUY BACK EVEN MORE CRITICAL BATTLE SPACE FOR OUR WARFIGHTERS**

CONCLUSION

- **AS I SAID AT THE BEGINNING OF THIS DISCUSSION, WE ARE TAKING A LEADING ROLE AS SURFACE WARRIORS IN NETWORK CENTRIC OPERATIONS WITH CEC, NFN, AADC AND OUR APPROACH TO ENSURING INTEROPERABILITY.**

- **BUT THERE IS MUCH WORK TO DO AS WE MOVE INTO THE NEXT PHASE OF THE CEC AND NFN PROGRAMS – THE JOINT, INTEGRATED PHASE**

- **MORE IMPORTANTLY, WE MUST ENSURE THAT WE INGRAIN OUR CULTURAL AND TECHNOLOGICAL COMMITMENT TO NETWORK CENTRIC OPERATIONS INTO THE SPIRAL DESIGN PROCESS FOR OUR FUTURE SURFACE COMBATANTS IN THE FAMILY OF SHIPS DD(X), CG(X) AND LCS.**

- **THESE WILL BE THE FIRST SHIPS DESIGNED FROM THE KEEL UP TO CONDUCT NETWORK CENTRIC OPERATIONS AND ACT AS A DISTRIBUTED FORCE.**

- **I CHALLENGE THIS GROUP, WHICH INCLUDES THE ENGINEERS WHO WILL DESIGN AND BUILD THESE SHIPS AND THE WARFIGHTERS WHO WILL SAIL THEM, TO EMBRACE THE FORCENET CONCEPT – LEARN IT – BUILD IT IN AND MAKE IT WORK.**